

REMARKS

Claim 4 has been cancelled. Claims 1-3 and 5-7 remain in the application for reconsideration by the Examiner. It is submitted that no new matter has been added to the application.

The Examiner objected to Claim 4 as being directed to an improper dependent Claim. Applicants have cancelled Claim 4 in the instant Office Action Response. Accordingly, Applicants respectfully request that the Examiner withdraw the 37 CFR 1.75(c) objection.

The Examiner rejected Claims 1 and 5 under 35 USC 103(a) as being obvious over the primary reference U.S. Patent No. 6,258,313 B1 to Gottlieb (Gottlieb) in view of excerpts from a secondary reference textbook by Genekoplis (Genekoplis) and excerpts from another secondary reference textbook by Tipler (Tipler).

An embodiment of Applicants' invention is set forth in Claim 1. It is directed to a process, comprising: preparing a polypropylene preform; and heating the preform, utilizing a plurality of infrared energy sources positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources. Dependent Claims 2, 3, and 5 contain at least the same features and limitations as Claim 1.

Applicants' invention as set forth in the embodiment of Claim 6 is direct to a process, comprising: preparing a polypropylene preform, said polypropylene selected from the group consisting of high, medium, and low density polypropylene, said polypropylene containing one or more adjuvants selected from the group consisting of clarifiers, fillers, extenders, lubricants, and infrared energy absorbing agents; and heating the preform, utilizing a plurality of infrared energy sources positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources, wherein the infrared energy sources are closest to the preform wall adjacent a portion of the preform having the greatest thickness. Dependent Claim 7 contains at least the same features and limitations as Claim 6.

Gottlieb discloses a stretch blow molding process, wherein a preform is heated on the interior by a hot gas or an IR radiation source, and on the exterior by exposure to IR radiation rods or lamps (Col. 2, lines 25-27). The preform may be differentially heated along its longitudinal axis by controlling and differentiating the amount of electrical energy supplied to the individual IR radiation rods. See, e.g., Col. 4, lines 20-22; viz, “[p]referably the infrared rods 38 are separately controlled such that the outside of preform 16 can be longitudinally differentially heated.”

Accordingly, Gottlieb does not teach nor even remotely suggest the required limitation set forth in Applicants' Claims, that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources." Gottlieb teaches that heating a preform having varying longitudinal thicknesses is accomplished by increasing or decreasing the amount of electrical energy supplied to the exterior IR radiation sources. See, e.g., Col. 4, lines 23-25; viz, "[t]he apparatus of the present invention can be preferentially controlled so that it can be adapted for use with plastics of varying... shapes of preforms."

Genekoplis discloses Fourier's law, describing the relationship between, inter alia, the rate of heat transfer versus distance between a heat source and a target. Fourier's law is an expression of one aspect of the operation of Gottlieb's process for differentially heating the exterior of a preform by increasing or decreasing the electrical power applied to individual IR radiation sources within the array of exterior preform heaters. Genekoplis does not teach nor even remotely suggest modifying the operation of Gottlieb's process; Genekoplis merely mathematically describes an aspect of Gottlieb's process.

Genekoplis does not cure the deficiencies of Gottlieb. Neither Gottlieb nor Genekoplis discloses Applicants' claimed limitation that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources."

Tipler discloses another mathematical relationship that describes yet another aspect of Gottlieb's operation. Tipler discloses, inter alia, a relationship between energy intensity and distance between an IR radiation source and target. Like Genekoplis, Tipler does not teach nor even remotely suggest modifying the way Gottlieb differentially heats the exterior of a preform. Tipler merely mathematically describes one aspect of Gottlieb's process.

Tipler does not cure the deficiencies of Gottlieb and Genekoplis (either alone or in combination). The combination of Gottlieb, Genekoplis, and Tipler does not suggest the required limitation set forth in all of Applicants' Claims; viz, that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources."

Applicants respectfully submit that the Examiner has not demonstrated the obviousness of Claims 1 and 5 given Gottlieb, Genekoplis, and Tipler. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this 35 USC 103(a) rejection.

The Examiner rejected Claim 2 under 35 USC 103(a) as being obvious over the primary reference Gottlieb in view of the secondary references Genekoplis, Tipler, and U.S. Patent No. 5,251,424 to Zenger et al. (Zenger). According to the Examiner's Office Action rejection, Zenger is cited in the rejection of Claim 2 because it "... teaches blow molding high-density polypropylene for dimensional stability (Col. 7, line 50 of the rejection)."

Zenger discloses a process for packaging products in plastic containers. Zenger discloses nothing about how its preform is thermally conditioned prior to the blow molding process. It is unknown whether Zenger's process even uses IR radiation sources to heat the exterior surface of the preform, because the reference does not discuss this aspect of the process. Zenger does not cure the deficiencies of the combination of Gottlieb, Genekoplis, and Tipler. The combination of Gottlieb, Genekoplis, Tipler, and Zenger does not teach nor even remotely suggest the required limitation in all of Applicants' Claims, that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources."

As stated above, the Examiner's Office Action rejection at page 5, lines 11 and 12 cites Zenger in the rejection of Claim 2 as teaching "... blow molding high-density polypropylene for dimensional stability (Col. 7, line 50)."

Zenger discloses throughout that its blow molded plastic containers may be used in combination with a hard plastic base cup. This base cup, attached to the bottom of the blow-molded plastic container by an adhesive, is made from dimensionally stable, high-density polypropylene or polyester, and provides a flat or footed base upon which the blow-molded plastic container can stand upright. This combination of blow-molded container and attached hard plastic base cup is used by a number of container manufacturers. It is well-known to anyone having even a cursory knowledge of the plastic container art that these base cups are not blow-molded, as incorrectly asserted by the Examiner in the outstanding Office Action rejection.

For the above-stated reasons, it is respectfully submitted that the Examiner has not demonstrated the obviousness of Claim 2 given Gottlieb, Genekoplis, Tipler, and Zenger. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this 35 USC 103(a) rejection.

The Examiner rejected Claim 3 under 35 USC 103(a) as being obvious over primary reference Gottlieb in view of secondary references Genekoplis, Tipler, and U.S. Patent No. 5,925,710 to Wu et al. (Wu).

Wu discloses infrared absorbing polyester packing, wherein infrared energy absorbing materials are incorporated into the packaging's plastic matrix. Wu discloses that the "...preform... can be heated with IR heaters... ." See Col. 2, line 52. Wu additionally discloses that one may treat a preform by "... lowering and raising the percent overall power of the quartz oven lamps ... ." See Col. 7, lines 61-63. This is precisely the method employed in Gottlieb, to differentially heat a preform. Nowhere does Wu disclose nor even remotely suggest Applicants' claimed limitation that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources." To the contrary, Wu confirms Gottlieb's teaching that differential heating is accomplished by delivering more or less electrical energy to the individual IR radiant heaters adjacent the exterior of a blow-molding preform.

Wu fails to cure the deficiencies of Gottlieb, Genekoplis, and Tipler. Therefore, Appellants respectfully submit that the Examiner has not demonstrated the obviousness of Claim 3 given Gottlieb, Genekoplis, Tipler, and Wu. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this 35 USC 103(a) rejection.

The Examiner rejected Claims 6 and 7 under 35 USC 103(a) as being obvious over primary reference Gottlieb in view of secondary references Genekoplis, Tipler, Zenger, and Wu.

As shown above, none of these references, either alone or in combination, teaches or even remotely suggests the required limitation set forth in all of Applicants' Claims; viz, that "... the infrared energy sources [be] positioned adjacent said preform at distances inversely proportional to the wall thickness of said preform directly apposing said infrared energy sources." To the contrary, the secondary references bolster Gottlieb's teaching that a blow-molding preform may be longitudinally, differentially heated by controlling and differentiating the amount of electrical energy supplied to the individual IR radiant sources adjacent the exterior surface of the preform. To assert that any of the combined references teach anything to the contrary is disingenuous.

Applicants respectfully submit that the Examiner has not demonstrated the obviousness of Claims 6 and 7, given Gottlieb in view of Genekoplis, Tipler, Zenger, and Wu. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this 35 USC 103(a) rejection.